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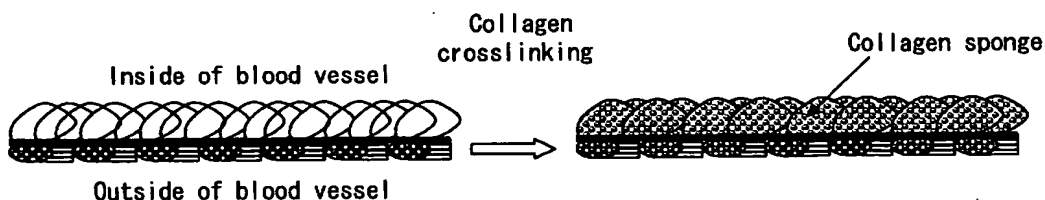
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- (71) Applicant (for all designated States except US): **CARDIO INCORPORATED** [JP/JP]; 4-15-5-302, Temma, Kita-ku, Osaka-shi, Osaka 530-0043 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MATSUDA, Hikaru** [JP/JP]; 20-5, Oharacho, Ashiya-shi, Hyogo 659-0092 (JP). **SAWA, Yoshiki** [JP/JP]; 8-3, Kendanicho, Nishinomiya-shi, Hyogo 662-0099 (JP). **TAKETANI, Satoshi** [JP/JP]; 5-13-3-2804, Nakanochō, Miyakojima-ku, Osaka-shi, Osaka 569-0814 (JP). **IWAI, Shigemitsu** [JP/JP]; 202 Haitsumotonda, 4-1-14, Tondacho, Takatsuki-shi, Osaka 569-0814 (JP). **HIRAKAWA, Koichiro** [JP/JP]; 709-36, Kamitsuruma, Sagamihara-shi, Kanagawa 228-0802 (JP).
- (74) Agents: **YAMAMOTO, Shusaku** et al.; Fifteenth Floor, Crystal Tower, 2-27, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 540-6015 (JP).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
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(54) Title: LAYERED BIORESORBABLE IMPLANT



(57) Abstract: The present invention provides an implant capable of being cellularized in treatment of an injured organ or tissue in organisms. The present inventors found that a biocompatible implant comprising a biological molecule and a support is capable of being cellularized. The implant can be used instead of conventional implants which essentially comprise cells. The present invention provides a biocompatible implant comprising A) a biological molecule and B) a support. The present invention also provides A) a first layer having a rough surface, B) a rough surface; B) a second layer having a strength which allows the support to resist in vivo shock. The first layer is attached to the second layer via at least one point.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/15641

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61L27/50 A61L27/58 A61F2/06 A61F2/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61L A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/165601 A1 (CLERC CLAUDE O) 7 November 2002 (2002-11-07) paragraph '0014! paragraph '0026! - paragraph '0028! paragraph '0031! - paragraph '0032! paragraph '0034! paragraph '0049! claims 1-3,7,10	1-102
A	US 5 584 875 A (DUHAMEL RAYMOND C ET AL) 17 December 1996 (1996-12-17) column 1 - column 2 column 4, line 30 - line 37 column 5, line 22 - line 23 example 1 claim 6	1-102

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

g document member of the same patent family

Date of the actual completion of the international search

18 May 2004

Date of mailing of the international search report

14/06/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Hars, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/15641

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 280 372 A (JOHNSON & JOHNSON MEDICAL) 1 February 1995 (1995-02-01) page 2 - page 5 claim 9	1-102
A	EP 0 636 378 A (JOHNSON & JOHNSON MEDICAL) 1 February 1995 (1995-02-01) column 1, paragraph 1 column 3, line 42 - column 4, line 21 column 5, line 32 - line 55 column 7, paragraph 1	1-102
A	EP 0 194 192 A (ETHNOR) 10 September 1986 (1986-09-10) page 5 page 7 - page 10	1-102
A	US 5 741 257 A (KIRSCH AXEL) 21 April 1998 (1998-04-21) column 1, line 40 - column 2, line 16 column 3, line 4 - line 18 claims 1,3,4	1-102
A	US 5 948 020 A (LEE SEUNG-JIN ET AL) 7 September 1999 (1999-09-07) column 2, line 31 - line 52 column 3, line 17 - line 55	1-102
A	WO 01/32229 A (SMITH & NEPHEW ; COTTON NICHOLAS JOHN (GB)) 10 May 2001 (2001-05-10) page 1 page 20, line 20 - page 21 figures 1-4	1-102
A	US 6 319 264 B1 (PAASIMAA SENJA ET AL) 20 November 2001 (2001-11-20) column 1, line 5 - line 6 column 1, line 47 - line 51 column 3, line 8 - column 4, line 38	1-102
A	HEINO A ET AL: "Application of a self-reinforced polyglycolic acid (SR-PGA) membrane to the closure of an abdominal fascial defect in rats." JOURNAL OF BIOMEDICAL MATERIALS RESEARCH. 1999, vol. 48, no. 5, 1999, pages 596-601, XP002280760 ISSN: 0021-9304 abstract page 596, right-hand column, paragraph 3	1-102
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP 03/15641

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 943 298 A (COUSIN BIOTECH S A S) 22 September 1999 (1999-09-22) paragraph '0001! - paragraph '0004! paragraphs '0007!, '0008!, '0014! - '0018!, '21.26! claims 8,10	1-102
A	WO 93/17635 A (BARD INC C R) 16 September 1993 (1993-09-16) page 1, paragraph 2 page 6 - page 8	1-102
A	WO 95/25482 A (ORGANOGENESIS INC) 28 September 1995 (1995-09-28) the whole document	1-102
A	EP 1 023 879 A (MEDTRONIC INC) 2 August 2000 (2000-08-02) paragraphs '0001!, '0004! - '0006!, '0008!, '0013! - '0020!	1-102

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP 03/15641

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-102
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 40-50, 96-100 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 1-102
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 40-50,96-100 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Continuation of Box I.1

Claims Nos.: 1-102

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

Continuation of Box I.2

Claims Nos.: 1-102

Present claims 1-102 relate to an extremely large number of possible compounds/products/apparatus/methods. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds/products/apparatus/methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the compounds/products/apparatus/methods as disclosed in the examples:

An implant comprising:

- a first knit layer made of a biodegradable polymer
- a second woven layer made of a biodegradable polymer

Optional features:

- an intermediate biodegradable polymer layer
- a biomolecule attached to the first layer
- and all other technical features that appear in the claims and that are both founded by the description and clear

Further, a process for preparing the implant and a method of culturing the implant inside an non human organism for non therapeutical purposes.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/15641

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